Discussion of
Career and Family: Collision or Confluence
by Claudia Goldin

Christopher Flinn

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Very interesting and thought-provoking look at two dimensions of the lives of women
- Career
- Motherhood

Taking an historical perspective, it is argued that women in more recent cohorts have been able to successfully combine the two.

I liked Claudia’s characterization of the behavior of educated women in various birth cohorts, and found it to be a useful and valid way to organize what otherwise would be very complex phenomena to summarize.

Women in the various cohorts are differentiated in terms of not only whether they achieve the two objectives, but also at what ages they attain them.

The conclusion of the paper is more speculative.

There it is argued that increased job flexibility in the timing and location of work is essential to improve upon the current situation.
• The missing linkage in the paper was the interaction between men and women in the determination of the ability of women to achieve career success and having a family.

• The general question is how meaningful it is to measure welfare, or even outcomes, solely at the individual level rather than at the household level.

• This is most obvious in the case of fertility decisions, where the task of investing in children is typically shared, whether in intact or non-intact households.

• But it is also the case in terms of labor market outcomes, where the labor market choices of spouses/partners are impacted by the characteristics and decisions of the other members of the household.
I will discuss a number of mechanisms within the household that may potentially be behind some of the observed outcomes upon which Claudia’s analysis is based.

I will not have anything to say about changes in these mechanisms that could have produced the intercohort patterns discussed in the paper.

A potentially fruitful approach to considering changes in cohort outcomes is to speculate how changes in underlying functions/parameters could potentially rationalize the data patterns observed here.

Using these types of models, one may be able to assess the types of changes that might be implemented in the labor market or within the household to increase a woman’s ability to achieve the goals of motherhood and career success.
Based on on-going work with Luca Flabbi in which we estimate a model of simultaneous search in the marriage and job markets.

We observe substantial amounts of marital sorting by schooling level, as seen in the accompanying table.

The data are for individuals 30-49 in 2007, taken from the Current Population Surveys (ORG) for that year.

Clear accepted wage differentials by schooling and gender.

Schooling classification is the same as the one used in Claudia’s paper.
Table 1: Descriptive Statistics CPS Sample

<table>
<thead>
<tr>
<th>Gender:</th>
<th>Female</th>
<th></th>
<th>Male</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education:</td>
<td>Low</td>
<td>High</td>
<td>Tot</td>
<td>Low</td>
</tr>
<tr>
<td>Marriage Market:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>32.8</td>
<td>16.2</td>
<td>48.9</td>
<td>37.5</td>
</tr>
<tr>
<td>Married</td>
<td>31.2</td>
<td>19.9</td>
<td>51.1</td>
<td>32.4</td>
</tr>
<tr>
<td>with Low</td>
<td>26.7</td>
<td>7.1</td>
<td>33.8</td>
<td>25.6</td>
</tr>
<tr>
<td>with High</td>
<td>4.4</td>
<td>12.8</td>
<td>17.2</td>
<td>6.8</td>
</tr>
<tr>
<td>Total</td>
<td>63.9</td>
<td>36.1</td>
<td>100.0</td>
<td>69.9</td>
</tr>
<tr>
<td>Labor Market:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>3.3</td>
<td>0.8</td>
<td>4.1</td>
<td>3.7</td>
</tr>
<tr>
<td>Employed</td>
<td>60.6</td>
<td>35.3</td>
<td>95.9</td>
<td>66.2</td>
</tr>
<tr>
<td>Total</td>
<td>63.9</td>
<td>36.1</td>
<td>100.0</td>
<td>69.9</td>
</tr>
<tr>
<td>Wages:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>13.4</td>
<td>23.2</td>
<td>16.2</td>
<td>26.3</td>
</tr>
<tr>
<td>SD</td>
<td>5.8</td>
<td>11.2</td>
<td>7.4</td>
<td>13.5</td>
</tr>
<tr>
<td>U Durations:</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.2</td>
<td>4.3</td>
<td>3.9</td>
<td>3.2</td>
</tr>
<tr>
<td>SD</td>
<td>5.5</td>
<td>5.2</td>
<td>4.9</td>
<td>4.2</td>
</tr>
<tr>
<td>N. Observations</td>
<td>31,565</td>
<td>17,828</td>
<td>49,393</td>
<td>36,056</td>
</tr>
</tbody>
</table>
Prior to entering these markets, individuals make binary schooling decisions, which are:

- College completion or more
- Some college or less

There are gender-specific, schooling-specific labor markets characterized by wage offer distributions, offer arrival and job dissolution rates.

Marriage market contact rates depend on the schooling type of the individual and are determined in equilibrium.

At any point in time, an individual is characterized by their marital status ($d$) and labor market status ($w$).

Individuals begin life as unmarried ($d = 0$) and unemployed ($w = 0$).
Married individuals make job acceptance decisions based in part on their spouses labor market status \( (w') \).

In general, we find the reservation wage \( w^*(w') \) is increasing in \( w' \), although this is theoretically ambiguous.

Our estimates reveal that women with higher education have:

- More favorable labor markets
- A greater likelihood of being married to men with higher education
  - Due to differences in contact rates (search markets) - in reality, many of these individuals meet while in college.
  - Due to the higher desirability of high-education types as partners
- Their husbands are more likely to have higher wages, implying the wives are more selective in terms of job opportunities
For an unmarried and unemployed man or woman, the job acceptance decision is based on:

- The impact on their utility from consumption
- The impact on the set of individuals who would be willing to marry them given an encounter

These will differ by schooling level

For a married and unemployed individual, job acceptance depends on

- Their schooling level
- Their spouse’s schooling level
- Their spouse’s current wage, $w'$
Women of high education are more likely to be married to high schooling men with high wages.

The model makes clear that the earnings distributions of married men and married women are simultaneously determined in equilibrium.

This makes it difficult to define success solely in terms of one partner’s outcomes.

When in the labor market, they are more likely to have higher earnings than women married to low schooling men for a number of reasons.
Although there is no fertility or divorce decision in the model, it may be reasonable to assume that diminishing marginal utility of consumption could produce (for high educated women):

- Time out of the market spent in child birth and child care.
- High levels of investment of time and money in child quality.
- These women will look successful - in terms of earnings - when they work, and will also have (high quality) children.

Another important implication of the model is that the schooling decision depends not only on the labor market, but also the marriage market.

Women deciding to go to college in different cohorts may be fundamentally different through this equilibrium selection phenomenon.
Investment in Children

- From the early work of Becker, economists became focused on quantity/quality trade-offs and how these decisions crucially depending on household income.

- Claudia’s indicator of success on the motherhood dimension is simply whether the woman has had a child by a given age.

- The value of having a child will largely depend on child outcomes, which are endogenous with respect to the mother’s and father’s decisions.

- This makes the decision to have a child a function of both partner’s characteristics.

- Brown, Flinn, and Mullins (2015) incorporate a fertility decision into a model of investment in children, labor supply, and divorce. For simplicity, I will briefly discuss investment decisions in the child only within intact families.
We consider investment in children and child outcomes.

Parents make investment decisions during the development period, \( t = 1, \ldots, M \).

The household chooses \( h_{jt} \), labor supply of parent \( j \); leisure of parent \( j \), \( l_{jt} \); child care time, \( \tau_{jt}(k) \), \( k = a, p \) (for active and passive); \( c_t \), household consumption; and \( e_t \), expenditures on child investment goods.

The current level of child quality in period \( t \) is \( k_t \), the wage offer to parent \( j \) is \( w_{jt} \); and non-labor income in the household is \( I_t \).
There is a Cobb-Douglas household utility function with stable (over time) parameters:

\[ u(l_{1t}, l_{2t}, c_t, k_t) = \alpha_1 \ln l_{1t} + \alpha_2 \ln l_{2t} + \alpha_3 \ln c_t + \alpha_4 \ln k_t, \]

where \( \sum_j \alpha_j = 1 \). The parameter vector \( \alpha \) is distributed according to \( G \) in the population.

Age \( t + 1 \) child quality is produced according to

\[ k_{t+1} = f_t(k_t, \tau_{1t}(a), \tau_{2t}(a), \tau_{1t}(p), \tau_{2t}(p), e_t) \]
\[ = R_t \tau_{1t}(a)^{\delta_{1,t}(a)} \tau_{2t}(a)^{\delta_{2,t}(a)} \tau_{1t}(p)^{\delta_{1,t}(p)} \tau_{2t}(p)^{\delta_{2,t}(p)} e_t^{\delta_{3,t}} k_t^{\delta_{4,t}}, \]

where \( R_t > 0 \) is the scaling factor known as total factor productivity, or TFP, at age \( t \).

The production parameters are age-varying, but assumed to be homogeneous in the population.

There are exogenous wage and non-labor income processes:
\[ \{w_{it}\}_{i=1,2; t=1,...,M}; \{l_t\}_{t=1}^M \]

There is no saving or borrowing; the only endogenous dynamic process is \( \{k_t\}_{t=2}^{M+1} \).
We use data from the PSID and the Child Development Supplement (CDS) of the PSID to estimate the model using a Method of Simulated Moments estimator. We computed bootstrap standard errors.

We allow heterogeneity in several dimensions: i) preferences, ii) initial child quality, iii) wage offers for parents, and iv) non-labor income.

Preference heterogeneity is given by the distribution $G(\alpha)$, which is three-dimensional given the adding-up constraint $\sum_j \alpha_j = 1$.

Production function is homogeneous with time-varying C-D parameters.
• The CDS data contain detailed time-budget information for up to 2 children aged 0-12 in the household in 1997, and this information is collected again in 2002 and 2007.

• It also contains test score information, and we use the Woodcock Johnson Achievement Test-Revised as a noisy measure of child cognitive ability in 1997 and 2002.

• Wages, non-labor income, and hours of work are taken from the regular PSID for the households in the sample.

• Demographic and education characteristics of parents are used in the estimation of the wage functions.
We find that the value of time investments by the parents are decreasing over the development period, with the active time investment values exhibiting the largest drops.

While mother’s time investments are generally more productive at early ages, father’s time investments are important determinants of cognitive development.

The value of money investments in the child only becomes significant towards the end of the development process.

Time investments in children are determined simultaneously with labor market hours decisions of both parents.

“Success” in child quality outcomes determined jointly with the labor market career of the mother and the father.
productivity of the input changes substantially over the child development process. As expected, mother’s active time is the most productive input for young children, followed by the active time investment of the father. For young children, passive time from mothers and fathers has much lower productivity. The productivity of mother’s and father’s active time is declining with the child’s age, while the productivity of the passive time of the mother and father is relatively invariant over the development process. By the time the child reaches age 12, the estimates indicate that passive time is about as productive as active mother’s or father’s time investment. This change in the productivity of time as the child ages reflects the changing input mix of time revealed in the data. Fathers spend more time with their child as the child ages and much of this time is of a passive sort.

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**TABLE 6**

*Technology parameter estimates (1-child families)*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s active time intercept</td>
<td>−1.33</td>
<td>(0.054)</td>
</tr>
<tr>
<td>Mother’s active time slope</td>
<td>−0.139</td>
<td>(0.0030)</td>
</tr>
<tr>
<td>Father’s active time intercept</td>
<td>−2.47</td>
<td>(0.016)</td>
</tr>
<tr>
<td>Father’s active time slope</td>
<td>−0.029</td>
<td>(0.0033)</td>
</tr>
<tr>
<td>Mother’s passive time intercept</td>
<td>−1.76</td>
<td>(0.029)</td>
</tr>
<tr>
<td>Mother’s passive time slope</td>
<td>−0.125</td>
<td>(0.0023)</td>
</tr>
<tr>
<td>Father’s passive time intercept</td>
<td>−2.86</td>
<td>(0.038)</td>
</tr>
<tr>
<td>Father’s passive time slope</td>
<td>−0.012</td>
<td>(0.0054)</td>
</tr>
<tr>
<td>Child expenditures intercept</td>
<td>−3.27</td>
<td>(0.037)</td>
</tr>
<tr>
<td>Child expenditures slope</td>
<td>0.104</td>
<td>(0.0058)</td>
</tr>
<tr>
<td>Last period’s child quality intercept</td>
<td>−2.047</td>
<td>(0.027)</td>
</tr>
<tr>
<td>Last period’s child quality slope</td>
<td>0.085</td>
<td>(0.0068)</td>
</tr>
</tbody>
</table>

**Figure 2**

Estimated child development parameters by child age (one-child model).

*Notes:* This graph plots the function estimate by child age (from Table 6)
The declining productivity of active parental time makes intuitive sense given our model specification. Once children attain the age of 5 or 6, they typically leave the home for significant periods of time each day for formal schooling activities. This amounts to a large, probably discontinuous, shift in the child quality production process. During the period of formal schooling, the child may increasingly be subject to inputs, both good and bad, from teachers and other students, which supplant the interactions that the child previously had with the parents. From the point of view of parental inputs, their input decisions have increasingly small effects on child outcomes as they are “crowded out” by these others. While one could argue about the form of the dependence of the production process on the age of the child, it is reasonable to think that the impact of parental inputs is, in general, declining.28

Figure 3 shows that the productivity of child goods expenditures ($\delta_3t$) and the persistence of child quality ($\delta_4t$) are increasing as the child reaches the upper age limit of our analysis. The former represents the increasing importance of child goods investments, perhaps through paid enrichment activities for the child. While we believe the latter trend may reflect a real characteristic of the development process, there is no doubt that it also reflects the ceiling effect produced by our fixed interval measure of child quality which is not age-normed.

4.1.3. Wage and non-labour income process parameters. The parents’ wage offer distribution depends on observed household characteristics, including mother’s and father’s age

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27. Of course, the parents continue to have a major impact on the factor inputs through their choice of the child’s schooling environment. Liu et al. (2010) focus on this important aspect of child investment decisions.

28. A few recent studies have pointed to the importance of the phenomenon of self-investment as the child ages (e.g. Cardoso et al., 2010). The persistence we note in the child quality process as the child ages may be due to the child, and others, supplying inputs that are unobserved and persistent.
Alice Schoonbroodt (Iowa) has used the DFW framework to examine when these child investments are made during the day. She also utilizes the same data, contained detailed time use data. She distinguishes time spent during TWH (traditional working hours, from 8 a.m. to 6 p.m., Monday-Friday), and those made outside of these times over a typical week.

<table>
<thead>
<tr>
<th></th>
<th>Mothers</th>
<th>Fathers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Active</td>
<td>Passive</td>
</tr>
<tr>
<td>TWH</td>
<td>7.50</td>
<td>4.81</td>
</tr>
<tr>
<td>OTWH</td>
<td>13.67</td>
<td>6.62</td>
</tr>
<tr>
<td>Total</td>
<td>21.17</td>
<td>11.43</td>
</tr>
</tbody>
</table>

Gap in child time much larger (in percentage terms) during TWH.
Will adding more job flexibility help women to have career and motherhood success?

These patterns suggest that it is not an easy question to answer.

Depends critically on whether the father can alter the organization of the time he spends with children as well.

Once again, characteristics of jobs held by men as well as women impact the ability of women to achieve success along these two dimensions.

Another question in all of this is the extent to which time with the child is consumption or investment. Probably a bit of both. Would shifting labor market schedules change the investment content of parental time?
The most stressful and demanding child care period occurs immediately after birth.

A substantial deterrent to having a child is the difficulty of staying employed and tending to an infant.

The U.S. is notorious in having ungenerous leave policies, which makes balancing these demands all the more difficult.

However, even in Europe, where there are much more generous leave policies, there is a problem of take-up, particularly with respect to fathers.

There are still perceived downsides for using leaves (asymmetric information and signalling?).

Sweden has gone so far as to mandate that these leaves be taken by fathers and mothers, in an attempt to lessen the stigma effect.
Summary

- This is a very stimulating paper that concerns across cohort changes in career patterns and fertility of highly-educated women.
- I apologize for not having more to say along the historical dimension.
- I have attempted to stress the interconnectedness of male and female outcomes, and have examined a few examples of models that can be used to think about them in a systematic manner.